IN THE SPECIFICATION

Please amend the paragraph beginning on page 5, line 8 as follows:

The transmitter portion of the telemetry system is controlled by the DSP and includes a transmitter power supply 212, a power driver 210, and a transmit filter 208. The transmitter power supply provides voltages that are compatible with the telemetry wand antenna and provides adjustability of the transmit power by the DSP. The power driver is controlled by the DSP and generates square waves that minimize interference with surface ECG and pace detection. The transmitter filter removes high-frequency components of the power driver's waveform that may cause radiative interference with other devices. A wand antenna 205 is used for both transmitting and receiving signals. The wand style detector 206 senses both the presence of a wand and the wand type by measuring the resistance of a wand identification resistor. This allows the telemetry system to adjust the transmitter and receiver as necessary for particular types of wand antennas. The detector also causes the system to disable the transmitter if the wand is disconnected. The analog portion of the receiving circuitry includes a filter/amplifier 204 that amplifies signals received by the wand as necessary and applies the low-pass anti-aliasing filtering to the signal prior to analog-to-digital conversion by ~~A/D~~ analog-to-digital converter 202. The DSP controls the filter/amplifier's overall gain to adjust for the responses of different types of wands.

Please amend the paragraph beginning on page 5 line 27 as follows:

Fig. 2 is a block diagram of the components making up the receiver portion of the telemetry system. The wand antenna 205 transduces a changing magnetic field intensity to a voltage which is the input signal to the analog receiver circuitry. The filter/amplifier 204 includes gain circuitry 204a that is distributed throughout the receiver and is controllable by the DSP, and a filter 204b that provides an anti-aliasing function with its poles distributed throughout the analog receiver circuitry. In an exemplary embodiment, a 100 KHz carrier signal is ASK modulated with a pulse train sub-carrier encoded with digital data, and the transmit pulses occur at a typical rate of 4

KHz with a pulse width between 20 and 100 microseconds, resulting in a bandwidth of the modulated carrier of approximately 10 to 150 KHz. In order to digitally demodulate the carrier waveform, the analog-to-digital converter must then sample the received signal at a rate at least equal to the Nyquist frequency of 300 KHz. In order to provide good correlation peaks in the matched filter used to detect transmit pulses and to simplify the DSP code, the analog-to-digital converter should preferably sample at a somewhat higher rate (e.g., approximately 350-400 KHz). The resolution of the ~~A/D~~ analog-to-digital converter should also be at least 10 bits in order to provide dynamic range without an automatic gain control circuit. In an exemplary embodiment, a 150-kHz, seventh-order Butterworth filter provides the anti-aliasing function prior to sampling, and a 10-bit analog-to-digital converter ~~(ADC)~~ 202 with integrated sample and hold generates the input samples. A feedback mechanism within the analog receiver regulates a voltage bias to the receiver input which tends to remove any low frequency components from the input signal. The output of the analog-to-digital converter ~~ADC~~ is a synchronous serial data stream which is sent to the DSP, and the DSP controls the sample rate of the analog-to-digital converter ~~ADC~~.

Please amend the paragraph beginning on page 9, line 3 as follows:

Referring to block 110 of Fig. 3, the output of the notch filter stage is input to the ~~FIR~~ matched filter 113. The coefficients of the ~~FIR~~ filter 113 are designed to correlate the filtered input signal samples with samples that would be expected from a transmit pulse generated by the implantable device. This type of filter is very effective in discriminating transmit pulses from background noise and increases the range of the telemetry system. The FIR coefficients are derived by capturing a strong, noise-free transmission signal from the implantable device immediately after the samples are converted to signed integers in the receiver interrupt handler. The captured data is then manipulated so that the signal samples are reversed in their order, thus flipping them in time, and each sample is amplitude offset so the average of the samples is near zero in order to eliminate any DC component from the coefficients. The samples are then normalized so that they are fractions, with the maximum sample amplitude equal to 1.0. These fractions are then scaled so the results are in the range of -32768 to 32767 and then copied into

the appropriate FIR coefficient table. With these FIR filter coefficients, the matched filter 113 performs a convolution between the input signal samples and samples corresponding to a time-reversed version of the transmit pulse expected to be generated by the implantable device, which is equivalent to performing a cross-correlation between the input signal and a transmit pulse. The output of the matched filter 113 is then compared to a threshold value (td_threshold) by the pulse detector 114. The TEL_RX signal is set high if the filtered value is above td_threshold, otherwise TEL_RX is set low.

Please amend the paragraph beginning on page 11, line 14 as follows:

In the embodiments of the invention described above, the received signal was digitized and processed in the digital domain to derive the transmit pulses. In other embodiments, the received signal could be processed in the analog domain to remove ~~narrowband~~ broadband and narrowband noise, correlate the signal with a transmit pulse by matched filtering, and detect transmit pulses with an adaptive threshold.